

20V Dual N-Channel MOSFET

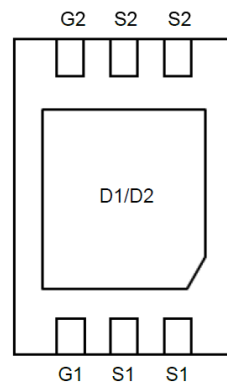
Description

The PM8204 uses advanced trench technology to provide excellent $R_{DS(on)}$ and low gate charge. It is ESD protected. This device is suitable for use as a uni-directional or bi-directional load switch, facilitated by its common-drain configuration.

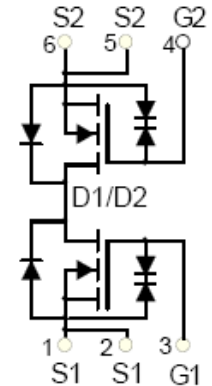
MOSFET Product Summary

$V_{(BR)DSS}$	$R_{DS(on)}$ TYP	I_D
20V	9 mΩ@4.5V	9.5A
	9.1 mΩ@4.0V	
	9.5 mΩ@3.8V	
	11 mΩ@3.1V	
	12 mΩ@2.5V	

Dimensions and Pin Configuration



Circuit diagram



Pin Configuration

Absolute Maximum Ratings ($T_A=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D	9.5	A
Pulsed Drain Current	I_{DM}	60	A
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	83.3	$^{\circ}C/W$
Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature	T_{STG}	-55~+150	$^{\circ}C$
Lead Temperature for Soldering Purposes(1/8" from case for 10 s)	T_L	260	$^{\circ}C$

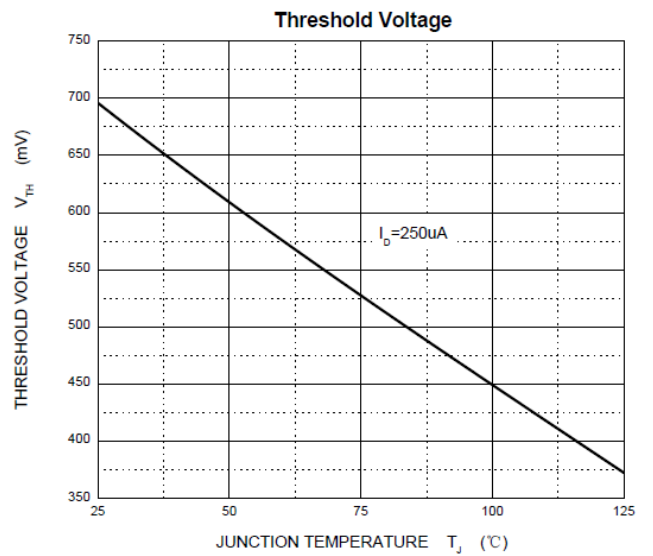
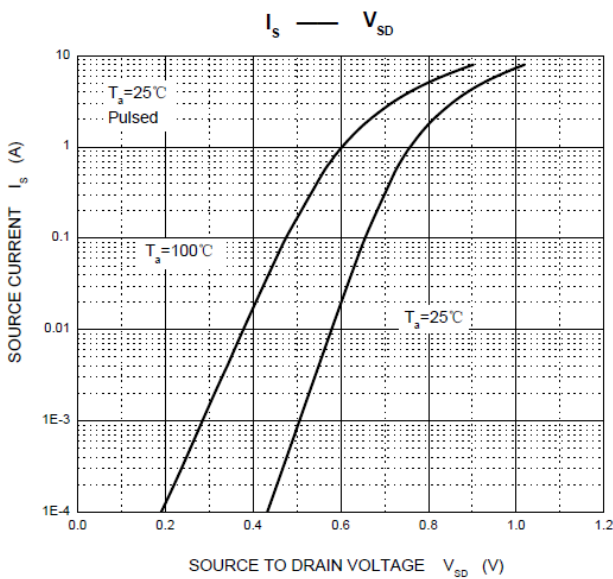
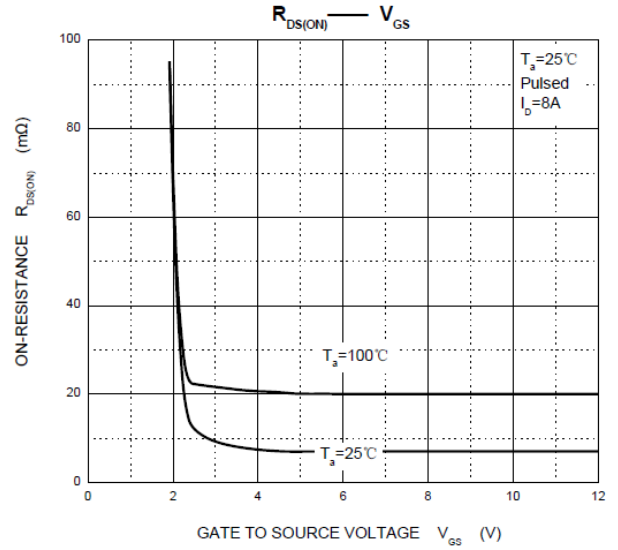
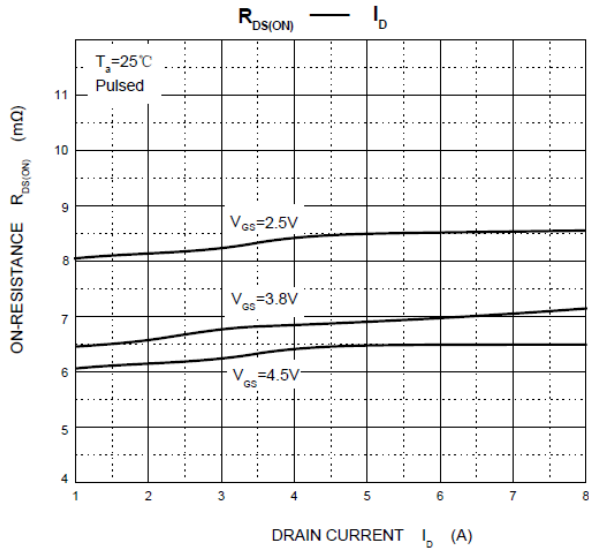
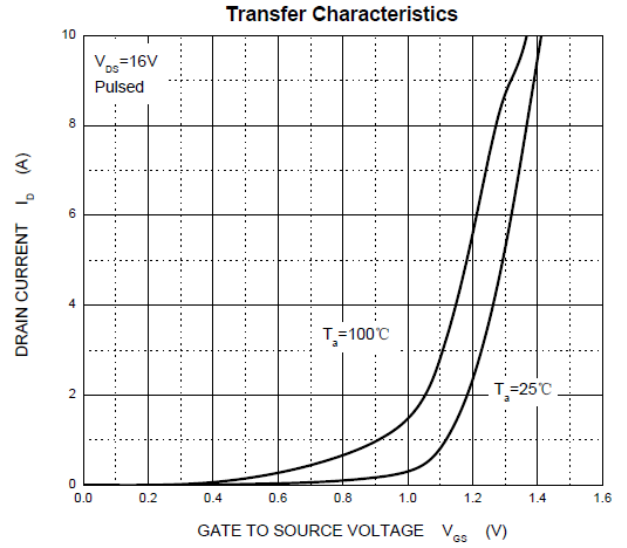
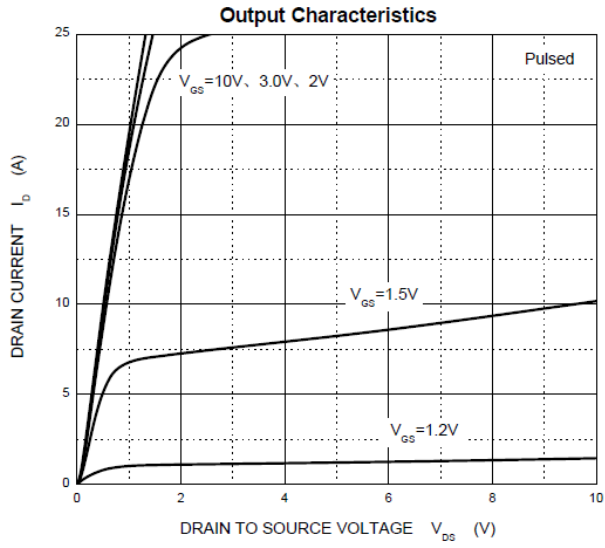
Electrical Characteristics (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	V _{(BR) DSS}	V _{GS} = 0V, I _D = 250μA	20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = 16V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±8V, V _{DS} = 0V			±10	μA
		V _{GS} = ±12V, V _{DS} = 0V			±10	μA
Gate threshold voltage ^(note 1)	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	0.45		1.5	V
Drain-source on-resistance ^(note 1)	R _{DS(on)}	V _{GS} = 4.5V, I _D = 4.5A	4.5	9	10	mΩ
		V _{GS} = 4.0V, I _D = 4.5A	4.8	9.1	11	mΩ
		V _{GS} = 3.8V, I _D = 4.5A	5.0	9.5	12	mΩ
		V _{GS} = 3.1V, I _D = 3A	5.5	10.2	13	mΩ
		V _{GS} = 2.5V, I _D = 3A	6.2	12	14	mΩ
Forward tranconductance ^(note 1)	g _{FS}	V _{DS} = 5V, I _D = 7A	9	36		S
Diode forward voltage ^(note 1)	V _{SD}	I _S = 9.5A, V _{GS} = 0V			1.2	V
DYNAMIC PARAMETERS ^(note 2)						
Input Capacitance	C _{iss}	V _{DS} = 10V, V _{GS} = 0V, f = 1MHz		1650		pF
Output Capacitance	C _{oss}			170		pF
Reverse Transfer Capacitance	C _{rss}			150		pF
Total gate charge	Q _g	V _{DS} = 15V, V _{GS} = 4.5V, I _D = 5.5A		22		nC
Gate-source charge	Q _{gs}			3.0		nC
Gate-drain charge	Q _{gd}			8.1		nC
SWITCHING PARAMETERS ^(note 2)						
Turn-on delay time	t _{d(on)}	V _{GS} = 4.5V, V _{DD} = 15V, I _D = 5.5A, R _{GEN} = 6Ω		10		ns
Turn-on rise time	t _r			40		ns
Turn-off delay time	t _{d(off)}			65		ns
Turn-off fall time	t _f			30		ns
Drain-Source Diode Characteristics						
Diode Forward Current	I _S		-	-	9.5	A

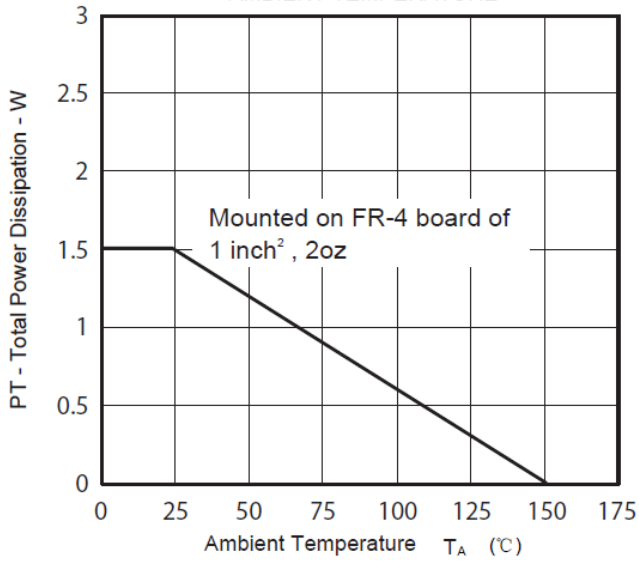
Notes :

1. Pulse Test : Pulse width ≤ 300μs, duty cycle ≤ 0.5%.
2. Guaranteed by design, not subject to production testing.

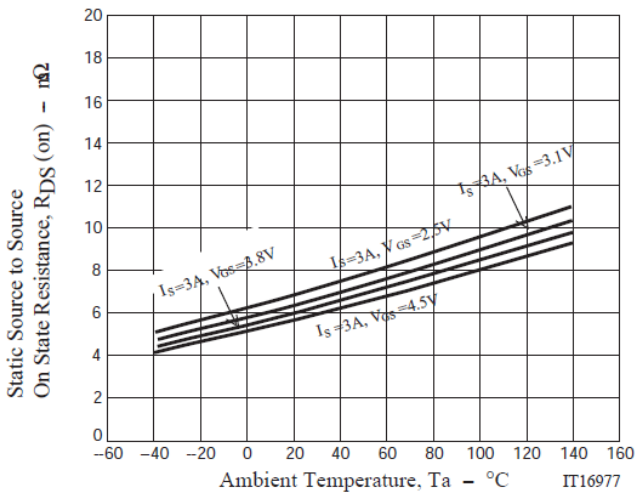
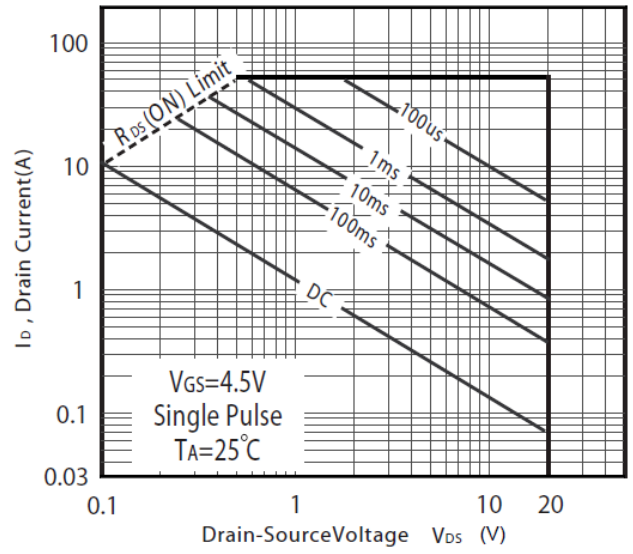
Typical Characteristics



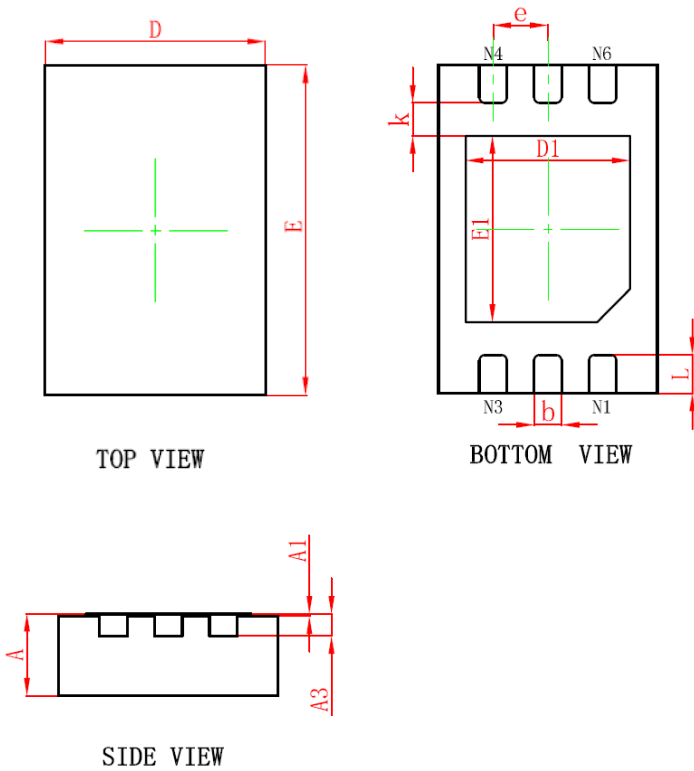
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



Maximum Safe Operating Area

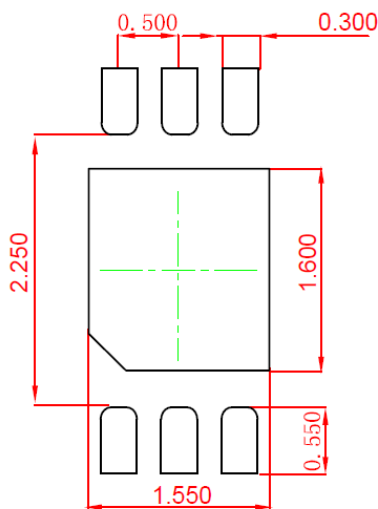


DFNWB 2X3-6L Package Outline Drawing



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.950	2.050	0.077	0.081
E	2.950	3.050	0.116	0.120
D1	1.450	1.550	0.057	0.061
E1	1.650	1.750	0.065	0.069
k	0.200MIN.		0.008MIN.	
b	0.200	0.300	0.008	0.012
e	0.500TYP.		0.020TYP.	
L	0.300	0.400	0.012	0.016

Suggested Land Pattern



- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: ± 0.050 mm.
 3. The pad layout is for reference purposes only.